

### Pipeline Architecture

Globals | Includes | Before/After | Extends

### Global Defaults

```
default image | services | before_script | after_script | cache
```

variables **Cannot be specified under default**

stages **Cannot be specified under default**

Job values always override global defaults.

### Include

```
include:
  - remote: 'https://gitlab.com/awesome-project/raw/master/.before-script-template.yml'
  - local: '/temp-lates/after-script-template.yml'
  - template: Auto-DevOps-gitlab-ci.yml
  - project: 'my-group/my-project'
    ref: master
    file: '/temp-lates/gitlab-ci-template.yml'
```

extension: .yml | .yaml

### Before and After Scripts

```
default:
  before_script:
    - global before script
job:
  before_script:
    - execute this instead of global version
  script:
    - my command
  after_script:
    - execute this after my script
```

### Extends

```
.only-important:
  only:
    - master
    - stable
  tags:
    - production
.in-docker:
  tags:
    - docker
  image: alpine
rspec:
  extends:
    - .only-important
    - .in-docker
  script:
    - rake rspec
spinach:
  extends: .in-docker
  script: rake spinach
```

### Jobs Management

Stages | Parameters | Environments

### Stages

```
stages:
  - .pre
  - build
  - test
  - deploy
  - .post
```

.pre and .post stages are guaranteed to be the first (.pre) or last (.post) stage in a pipeline

### Disabling Jobs by Hiding Them

```
.hidden_job:
  script:
    - run test
```

temporarily 'disable' a job by prepending a dot (.)

### Variables

```
variables:
  ENVIRONMENT: "staging"
  DB_URL: "postgres://postgres@postgres/db"
build:
  script: mvn build
variables:
  ENVIRONMENT: "production"
```

### Environment

```
review_app:
  stage: deploy
  script: make deploy-app
  environment:
    name: review
    on_stop: stop_review_app
stop_review_app:
  stage: deploy
  variables:
    GIT_STRATEGY: none
  script: make delete-app
  when: manual
  environment:
    name: review
    action: stop
deploy as review app:
```



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### Environment (cont)

```
> stage: deploy
script: make deploy
environment:
  name: review/$CI_COMMIT_REF_NAME
  url: https://$CI_ENVIRONMENT_SLUG.example.com/
```

### Pages

```
pages:
  stage: deploy
  script:
    - mkdir .public
    - cp -r * .public
    - mv .public public
  artifacts:
    paths:
      - public
  only:
    - master
```

Pages is a special job that is used to upload static content to GitLab that can be used to serve your website

### Dependencies

```
build:osx:
  stage: build
  script: make build:osx
artifacts:
  paths:
    - binaries/
build:linux:
  stage: build
  script: make build:linux
```

### Dependencies (cont)

```
> artifacts:
  paths:
    - binaries/
test:osx:
  stage: test
  script: make test:osx
dependencies:
  - build:osx
test:linux:
  stage: test
  script: make test:linux
dependencies:
  - build:linux
deploy:
  stage: deploy
  script: make deploy
```

By default, all artifacts from all previous stages are passed to the current job, but you can use the dependencies parameter to define a limited list of jobs (or no jobs) to fetch artifacts from.

### Needs

```
linux:build:
  stage: build
mac:build:
  stage: build
linux:rspec:
  stage: test
  needs: ["linux:build"]
linux:rubocop:
  stage: test
  needs: ["linux:build"]
```

### Needs (cont)

```
> mac:rspec:
  stage: test
  needs: ["mac:build"]
mac:rubocop:
  stage: test
  needs: ["mac:build"]
production:
  stage: deploy
```

The needs: keyword enables executing jobs out-of-order, allowing you to implement a directed acyclic graph. This lets you run some jobs without waiting for other ones, disregarding stage ordering so you can have multiple stages running concurrently.

### Tags

```
job:
  tags:
    - ruby
    - postgres
osx job:
  stage:
    - build
  tags:
    - osx
  script:
    - echo " Hello, $USER! "
```

tags is used to select specific Runners from the list of all Runners that are allowed to run this project. During the registration of a Runner, you can specify the Runner's tags, for example ruby, postgres, windows, osx.



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### Trigger

```
staging:
  stage: deploy
  trigger: my/dep loyment
staging-b ranch:
  stage: deploy
  trigger:
    project: my/dep loyment
    branch: stable
```

trigger allows you to define downstream pipeline trigger. When a job created from trigger definition is started by GitLab, a downstream pipeline gets created.

### Parallel

```
test:
  parallel: 3
  script:
    - bundle
    - bundle exec rspec -
  booster --job $CI_NO DE_ IND -
  EX/ $CI_NO DE_ TOTAL
```

parallel allows you to configure how many instances of a job to run in parallel. This value has to be greater than or equal to two (2) and less than or equal to 50.

### Flow Control

#### Rules | Retries

### rules Evaluation

```
docker build:
  script: docker build -t my-
  image: $SLUG .
  rules:
    - changes:
      - Dockerfile
      when: manual
    - if: '$VAR == " string
  value"'
      when: manual
    - when: on_success
docker build:
  script: docker build -t my-
  image: $SLUG .
  rules:
    - if: '$VAR == " string
  value"'
      changes:
      - Dockerfile
      - docker /sc ripts/*
      when: manual
```

To conjoin if and changes clauses with an AND, use them in the same rule.

### Job Retries

```
test:
  script: rspec
  retry:
    max: 2
    when:
      - runner_sy ste -
  m_f ailure
      - stuck_ or_ tim -
  eou t_f ailure
when: always | unknow n_f ailure
| script_fa ilure | api_fa ilu
re | stuck_ or_ tim eou t_f ailu
re | runner_sy ste m_f ailure |
  missin g_d epe nde ncy_fa ilu
re | runner_un sup ported
```

### Interruptible

```
stages:
  - stage1
  - stage2
step-1:
  stage: stage1
  script:
    - echo "Can be cancel ed"
step-2:
  stage: stage2
  script:
    - echo "Can not be
  cancel ed"
  interruptible: false
```

This value will only be used if the **automatic cancellation of redundant pipelines** feature is enabled.

### Protecting Manual Jobs

```
deploy_prod:
  stage: deploy
  script:
    - echo " Deploy to
  production server "
  environment:
    name: production
    url: https://e xam -
  ple.com
  when: manual
  only:
    - master
  allow_fai lure: false
```

In the protected environments settings, select the environment and add the users, roles or groups that are authorized to trigger the manual job to the Allowed to Deploy list



### Artifact Management

Artifacts | Docker | Cache

#### Artifacts

```

job:
  artifacts:
    name: "$CI_JOB_NAME -
    paths:
      - binaries/
      - .config
    untracked: true
    when: on_failure
    expire_in: 1 week
  code_quality:
    stage: test
    script: codequality /code
    artifacts:
      reports:
        codequality: gl-
codequality -report.json
        coverage: '/Code coverage:
\d+\.\d+/'
  untracked: true | false when: on_
success | on_failure | always |
manual
  
```

#### Docker Image

```

image:
  name: super/ sql :ex per -
  imental
  entrypoint: [""]
  
```

#### Docker Service

```

services:
  - name: postgres:9.4
    alias: db
    entrypoint: ["do cke -
re ntr ypo int.sh "]
    command: ["po stg -
res "]
  
```

### Cache

```

build:
  script: mvn test
  cache:
    key: build
    untracked: true
    paths:
      - binaries/
    policy: pull
  policy : pull | push | pull-push
  untracked : true | false
  
```